

Nationwide Implementation of Telemedicine and CPR Systems in Taiwan

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We review the current state of telemedicine and medical informatics in Taiwan, including the description of innovative hospital information systems, diagnosis and treatment support systems, and telemedicine systems. Major US experiences are then reviewed to extrapolate the benefits of a nationwide implementation of telemedicine and computer-based patient record (CPR) systems. Benefits are broken down as savings, improvements in the quality and access to care, and improvements in population health. The anticipated evolution in Taiwan is described, including the expected impact of the recent nationwide implementation of the National Health Insurance System, and current barriers to telemedicine and CPR implementation.

We present a strategy for implementing telemedicine and CPR systems that minimizes resistance to change. Partial CPR implementation should precede telemedicine implementation. Indeed, studies of past telemedicine projects have shown that time and overhead considerations are an important determinant of success or failure of a telemedicine program. CPR implementation should start with a patient-centered, lightweight system. Such a system could be based on a standalone single-user record system, with communications initially handled through a portable

medium such as a floppy disk before the widespread availability of networked communications (Personal Medical Disk concept). Success of such a system requires widespread availability of the software and a commitment to use the system to further national health. Distributed objects based on standards such as CORBA (or even Java) are now increasingly seen as providing substantial opportunities for developing highly interoperable CPR systems. Accordingly, development of standardized medical object interfaces should be a nationally coordinated priority and should respect standards being developed elsewhere. A clinically complete Chinese medical lexicon is another important component of a functional CPR system.

The study concludes with a description of the critical research needed to develop the required technology. In addition to the standalone CPR system (Personal Medical Disk) mentioned above, including communications components with standardized interfaces., it is important to develop a prototype telemedicine system with integrated CPR communications and whiteboard system; in order to allow cost-effective, flexible telemedicine consultations, the system should be able to function in two modes, interactive and store-and-forward.